

Amendments to the Drawings

Kindly substitute the enclosed replacement drawing sheet 1/6 for the corresponding drawing sheet originally submitted with the application. This replacement sheet contains a corrected drawing FIG. 1 wherein the legend -- (PRIOR ART) -- is added pursuant to MPEP §608.02(g).

Attachment: Replacement Sheet 1/6.

Remarks

Allowance of all claims is respectfully requested. Claims 1-16 & 21-22 are now pending.

Initially, a replacement drawing sheet 1/6 is submitted herewith for the originally filed drawing sheet 1/6. In this replacement sheet, the legend “(PRIOR ART)” is added to address the drawing objection contained in the initial Office Action. Based on this amendment, withdrawal of the objection to the drawings is respectfully requested.

By this paper, independent claims 1 & 9 are amended and new independent claim 21 is added to more particularly point out and distinctly claim certain aspects of the present invention. These claim amendments are submitted in a *bona fide* attempt to further prosecution of the application. Support for the amended language can be found throughout the application as filed. For example, reference FIG. 6 and the discussion thereof at paragraphs [0038] – [0040] of the specification. Thus, no new matter is added to the application by any amendment presented. Finally, claims 17-20 are canceled herein without prejudice as being duplicative of the remaining pending claims.

In the Office Action, claims 1, 2, 7-10, 15-18 & 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Applicants’ disclosed prior art document “The Evolution of IBM High Performance Cooling Technology” by Simons (hereinafter Simons) in view of Clarke et al. (U.S. Patent No. 5,245,869; hereinafter Clarke), while claims 3-6, 11-14 & 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Simons and Clarke as applied to claims 1, 9 & 17, and further in view of Koizumi et al. (U.S. Patent No. 5,323,847; hereinafter Koizumi). These rejections are respectfully, but most strenuously, traversed to any extent deemed applicable to the claims presented herewith and reconsideration thereof is requested.

An “obviousness” determination requires an evaluation of whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art. In evaluating claimed subject matter as a whole, the Federal Circuit has expressly mandated that functional claim language be considered in evaluating a claim relative to the prior art. Applicants respectfully submit that the application of these standards to the independent claims presented herewith leads to the conclusion that the recited subject matter would not have been obvious to one of ordinary skill in the art based on the applied and cited art.

By way of example, Applicants claim a method of monitoring coolant within a cooling system (e.g., claim 1) which includes: employing at least one pressure transducer to facilitate obtaining multiple pressure measurements related to an amount of coolant within an expansion tank of the cooling system; determining a rate of volume change of coolant within the expansion tank employing the multiple pressure transducers; determining whether the amount of coolant within the expansion tank of the cooling system is increasing or decreasing due to a cooling system defect; and automatically determining type and immediacy of action to be taken to service the cooling system responsive to a comparison of the magnitude of the rate of volume change of coolant within the expansion tank to multiple predefined leak rate set points, and to the determining whether the amount of coolant within the expansion tank of the cooling system is increasing or decreasing. Applicants respectfully submit that at least their processing for determining whether the amount of coolant within the expansion tank of the cooling system is increasing or decreasing, and for automatically determining a type and immediacy of action to be taken based in part thereon, is not taught or suggested by Simons, Clarke and Koizumi, or the other art of record.

Simons discloses various apparatuses/systems and methods of monitoring coolant within a cooling system, including a water cooled system such as shown in FIG. 16 thereof. For purposes of the present discussion, this figure and the supporting discussion thereof are essentially the same as Applicants' admitted prior art FIG. 1, and the supporting discussion thereof. Neither Simons nor FIG. 1 of the present application discloses any of the functionality at issue in the independent claims presented. This is expressly recognized at page 3 of the initial Office Action where it is noted that Simons fails to disclose at least the first two steps of Applicants' independent claims. For a rejection of the initially recited subject matter, as well as for a suggestion of the various dependent claims at issue, the Office Action relies upon Clarke and Koizumi.

Clarke discloses a mass sensing system for monitoring the amount of fluid in a storage tank with an accuracy high enough to determine both the quantity present and the potential loss of fluid at a loss rate of 0.05 gal/hr or at least 0.1 gal/hr. The system utilizes a pressure sensor positioned at the bottom of the tank and in contact with the fluid. This device includes a bellows unit whose displacement is correlated to changes in the mass of fluid in which it is immersed,

and a transducer for monitoring the positions of the bellows, wherein the interior of the bellows unit is in the same atmosphere as the sensor, and the sensor is in communication with the vapor pressure immediately above the fluid in the tank. The outside of the bellows is subjected to the stored fluid. A multiple capsule bellows assembly is coupled to an LDVT transducer and a thermal-expansion-canceling configuration of the invention. (See Abstract of Clarke.)

Although Clarke does describe a sensor for monitoring fluid quantity in a storage tank, a careful reading thereof fails to uncover any teaching or suggestion of a facility for determining whether the hydrocarbon fluid level within the storage tank could be increasing, nor for a facility for automatically determining a type and immediacy of action to be taken given, in part, an increasing hydrocarbon level. These differences relate to the different uses of the Clarke system and the present invention. In Clarke, the fluid is a hydrocarbon fluid, while in the present invention, a liquid coolant of a cooling system is being monitored. Since the Clarke system is only monitoring loss of fluid from the expansion tank, and no discussion is provided therein for suggesting monitoring for a cooling system defect resulting in an increasing fluid, Applicants respectfully submit that one of ordinary skill in the art would not have read the Clarke patent as somehow teaching or suggesting the various processes of the independent claims presented herewith.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of the obviousness rejection to independent claims 1, 9 & 21. New independent claim 21, which recites the functionality of Applicants' FIG. 6, is presented as a more specific embodiment of the functionality recited in independent claims 1 & 9. This claim is believed allowable for at least the reasons noted above with respect to claims 1 & 9, as well as for its own additional processing steps.

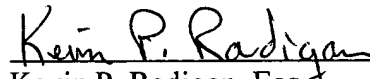
The dependent claims are believed allowable for the same reasons as the independent claims, as well as for their own additional characterizations. In this regard, Applicants note that Koizumi, cited in combination with Simons and Clarke relative to Applicants' original claims 3-6, 11-14 & 19, fails to teach or suggest any of the above-noted deficiencies of Simons and Clarke when applied against the claims presented herewith. Koizumi teaches a closed liquid cooling system wherein there is no possibility for an increasing amount of coolant within the expansion

tank due to a system defect discussed. For at least this reason, reconsideration and withdrawal of the obviousness rejection based on Simons, Clarke and Koizumi is respectfully requested.

For at least the above reasons, Applicants respectfully submit that all claims are in condition for allowance, and such action is respectfully requested.

If a telephone conference would be of assistance in advancing prosecution of the subject application, Applicants' undersigned attorney invites the Examiner to telephone him at the number provided.

Respectfully submitted,

A handwritten signature in cursive script, reading "Kevin P. Radigan", is written over a horizontal line.

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